In the claims:

1. (original) A fusion protein comprising an interferon-alpha (IFN-α) molecule joined at its C terminal end through a peptide linker to an N terminal end of an immunoglobulin heavy chain comprising a hinge, C_H2, and C_H3 domain, wherein the linker has a sequence chosen from Gly-Gly-Gly-Gly-Ser-Gly-Gly-Gly-Gly-Ser (GS10; SEQ ID NO:28), Gly-Gly-Gly-Gly-Ser-Gly-Gly-Gly-Gly-Ser-Gly-Gly-Gly-Gly-Ser (GS15; SEQ ID NO:29), and Gly-Gly-Gly-Gly-Ser-Gly-Gly-Gly-Gly-Ser-Gly-Gly-Gly-Gly-Ser-Gly-Gly-Gly-Gly-Ser (GS20; SEQ ID NO:30).

2. (original) The fusion protein of claim 1, wherein the IFN-α is IFN-α2b.

3. (original) The fusion protein of claim 1, wherein the IFN-α is a consensus IFN.

4. (original) The fusion protein of claim 1, wherein the immunoglobulin heavy chain is a human Fcγ1 heavy chain.

5. (original) The fusion protein of claim 1, wherein the immunoglobulin heavy chain has an amino acid sequence provided by SEQ ID NO:2.

6. (original) The fusion protein of claim 1, wherein the IFN-α is IFN-α2b and the immunoglobulin heavy chain is a human Fcγ1 heavy chain.

7. (original) The fusion protein of claim 1, wherein the linker has a sequence Gly-Gly-Gly-Gly-Ser-Gly-Gly-Gly-Gly-Ser (GS10; SEQ ID NO:28).

8. (original) The fusion protein of claim 1, wherein the linker has a sequence Gly-Gly-Gly-Gly-Ser-Gly-Gly-Gly-Gly-Ser-Gly-Gly-Gly-Gly-Ser (GS15; SEQ ID NO:29).

9. (original) The fusion protein of claim 1, wherein the linker has a sequence Gly-Gly-Gly-Gly-Ser-Gly-Gly-Gly-Gly-Ser-Gly-Gly-Gly-Gly-Ser-Gly-Gly-Gly-Gly-Ser (GS20; SEQ ID NO:30).

10. (original) The fusion protein of claim 1, wherein the fusion protein is a disulfide-linked homodimer.

11. (original) A fusion protein comprising an interferon-alpha 2b (IFN-α2b) molecule joined at its C terminal end through a peptide linker to an N terminal end of a human Fcγ1 heavy chain comprising a hinge, C_H2, and C_H3 domain, wherein the linker has a sequence Gly-Gly-Gly-Gly-Ser-Gly-Gly-Gly-Gly-Ser-Gly-Gly-Gly-Gly-Ser (GS15; SEQ ID NO:29).

12. (currently amended) The fusion protein of claim 11, wherein the fusion protein is a disulfide-linked homodimer.

13. (original) A method for systemic delivery of interferon-alpha (IFN-α), comprising:

administering an effective amount of an aerosol of a fusion protein of claim 1 to lung such that a central lung zone/peripheral lung zone deposition ratio (C/P ratio) is at least 0.7.

Claims 14-17 (canceled)

18. (original) A method for systemic delivery of interferon-alpha 2b (IFN-α2b), comprising:

administering an effective amount of an aerosol of a fusion protein of claim 11 to lung such that a central lung zone/peripheral lung zone deposition ratio (C/P ratio) is at least 0.7.

Claims 19-22 (canceled)

23. (original) A method for systemic delivery of interferon-alpha (IFN-α), comprising:

administering an effective amount of an aerosol of a fusion protein of claim 1 to lung, wherein particles in the aerosol have a mass median aerodynamic diameter (MMAD) of at least 3 micrometers (μm).

Claims 24-27 (canceled)

28. (original) A method for systemic delivery of interferon-alpha 2b (IFN-α2b), comprising:

administering an effective amount of an aerosol of a fusion protein of claim 11 to lung, wherein particles in the aerosol have a mass median aerodynamic diameter (MMAD) of at least 3 micrometers (μm).

Claims 29-32 (canceled)

33. (original) An aerosol delivery system, comprising a container, an aerosol generator connected to the container, and a fusion protein of claim 1 disposed within the container, wherein the aerosol generator is constructed and arranged to generate an aerosol of the fusion protein having particles with a MMAD of at least 3 μm.

Claims 34-39 (canceled)

40. (original) An aerosol delivery system, comprising a container, an aerosol generator connected to the container, and a fusion protein of claim 11 disposed within the container, wherein the aerosol generator is constructed and arranged to generate an aerosol of the fusion protein having particles with a MMAD of at least 3 μm.

Claims 41-46 (canceled)

47. (original) A method of treating an interferon-alpha (IFN-α)-sensitive disease in a subject, comprising

administering to a subject having an IFN-α-sensitive disease an aerosol of the fusion

protein of claim 1, in an effective amount to treat the IFN-α-sensitive disease.

Claim 48 (canceled)

49. (original) A method of treating an interferon-alpha 2b (IFN-α2b)-sensitive disease in a subject, comprising

administering to a subject having an IFN-α2b-sensitive disease an aerosol of the fusion protein of claim 11, in an effective amount to treat the IFN-α2b-sensitive disease.

Claim 50 (canceled)